

## Alternative WS-14

Group

**WATER SUPPLY**

Title

**West-side Sacramento Storage and Conveyance Facility**

The purpose of this alternative is to develop the full potential of the available water and fisheries resources located in and upstream of the Delta. The concept is to provide additional water supplies to the Delta during critical periods by diverting, storing, and conveying a percentage of flood waters that now flow out to sea. Major diversions now impacting fisheries would be relocated and consolidated to upstream locations that would reduce or eliminate the fisheries impacts and improve the water quality of the water diverted. Flood flows would be stored in new carry over storage facilities that would provide a higher degree of water supply reliability and flexibility of system operation of existing reservoirs. The conveyance system would link and offer flexibility for conjunctive use between surface and groundwater storage and urban, agricultural, and environmental beneficial uses. The conveyance system would terminate at the current south Delta pumps, thus eliminating the impacts of pumping on the south Delta. Habitat restoration, and enhancement in the Delta and River system and tributaries would be developed in consort with the new operational flexibility of the existing and the new reservoirs to enhance fish and wildlife. Vulnerability of Delta functions to catastrophic failure would be protected by the new facility in combination with flood way and levee improvement.

Diversion conduits from Shasta Lake and Lake Oroville would be used to convey a small fraction of the flood flows to reservoir sites for "banking" on the west side of the Sacramento valley. Water would be diverted only when the reservoirs are spilling. New storage reservoirs along the west side of the Sacramento valley could have stored 13 million ac-ft of additional water from Shasta lake flood releases could have been banked from 1971 to 1992. With a cross-valley conduit from Oroville to the west side reservoirs this concept could add approximately 2 million acre feet to the Delta water supply in an average year. Water released from the west-side reservoirs could also assist out migration of fish at critical time.

### Key Actions

***Consolidate and relocate diversions***—Construct new diversions at Shasta Lake and Lake Oroville forebay with capacities to capture significant wet weather flows that would otherwise must be released. For this alternative the diversion at Shasta would range 5,000 to 10,000 cfs while Oroville's capacity would range from 2,000 to 7,000 cfs.

***Develop additional off-stream storage***—Develop approximately 10 million ac-ft of new storage capacity at off-stream reservoir sites on the westside streams between Shasta and Lake Berryessa. Potential reservoirs such as the Colusa-Sites would be linked together by a new westside conveyance system. The reservoirs would be operated to supply Westside agricultural irrigation water, and exports from the Delta for agriculture, municipal and industrial uses and to the Sacramento River and tributaries environmental beneficial uses.

***Develop conveyance facilities***—Develop conveyance facilities to connect the diversions to west-side storage facilities. From the storage facilities connect to the Tehama-Colusa Canal, Glenn-

Colusa Irrigation District, possibly the North Bay Aqueduct, and a cross-Delta Transfer facility. Provide turnouts to stream flow augmentation points and to groundwater conjunctive use areas on the west and east sides of the valley.

***Construct an isolated west-side cross-Delta Facility***—Construct an isolated conveyance system that connects the west-side storage projects to the California Aqueduct and the Delta Mendota Canal. The capacity of the facility would approximately equal that of the California Aqueduct and Delta Mendota Canal combined. (Around 15,000 to 20,000 cfs)

***Modify reservoir operations***—Reoperate Shasta Reservoir and Oroville Reservoir to provide high flow diversion to Westside storage facilities and to manage flows and temperatures in river fisheries habitats.

***Upstream Habitat Restoration***—Additional upstream storage will provide opportunity for improved flow and temperature regulation in Sacramento River and Westside tributaries. Restoration of upstream habitats also would rely on core-level implementation of actions in high priority areas, such as restoring spawning gravels in upstream anadromous fish habitats, restoring sites for riparian vegetation, and improving fish passage at upstream barriers.

***Bay-Delta Habitat Restoration***—Restoration of Bay-Delta habitats would rely on core-level implementation of actions such as protecting existing shallow water habitat from erosion, restoring riverine habitat on channel islands, enhancing existing riparian and wetland habitats, and improving efforts to prevent further introduction of undesirable exotic species.

***Encourage groundwater banking and conjunctive use***—In order to maximize the opportunity for groundwater reclamation and recharge, and conjunctive use with the west-side surface storage, encourage and provide the conveyance facilities to aquifers such as the Butte Creek and Stoney Creek Basins .

***Channel and floodway habitat improvement***—Expand floodway habitat, channels, and meander belts in the Bay-Delta and in the rivers and the tributaries upstream of the Delta to restore fish spawning, rearing, feeding habitats, and improve fish survival.

***Fish Screens***—Install fish screens on the remaining diversions that divert over 100 cfs and are on fish migration routes.

***Management of Water Quality***—This alternative would rely on core actions which include implementing watershed source controls, strengthening urban, agricultural, and mining discharge controls, improving pest-control practices, and better management of dredging operations.

***Levee Upgrades***—Provide landside buffer zones of at least 75 yards to minimize levee subsidence and improve levee maintenance and stabilization to at least hazard mitigation plan standards (HMP; a level of protection less than the 100-year flood) for islands providing valuable existing habitat, such as on Bradford Island. Improve levee maintenance and stabilization to at least National Flood Insurance Program standards (NFIP; 100-year flood protection) and to maximum credible earthquake standards (MCE) for all islands, such as Tyler and Mandeville, containing

existing infrastructure and/or land use that provides economic benefit to the region. Improve levee maintenance and stabilization to at least Bulletin 192-82 or PL-99 standards (generally considerably more than 100-year flood protection) and to MCE standards for critical western Delta islands, such as Brannan-Andrus, Bethel, and Sherman, to reduce risk to critical infrastructure (e.g. Mokelumne Aqueduct, PG&E gas lines, Highway 160) and to reduce risk to export water quality from salinity intrusion due to levee failure. A levee management plan would provide necessary funding for ongoing maintenance and emergency funding and direction to reclaim Delta islands in the event of inundation in order to continue protection of Delta functions as an integrated resource system.

## **Preliminary Assessment**

***Ecosystem Quality***—This alternative would greatly enhance ecosystem quality by eliminating the impacts of the major diversions and providing more opportunity for managing flows and temperature in the Sacramento River and upstream tributaries. The elimination of the export pumps in the south Delta along with habitat restoration and enhancement in the Delta and the river system will improvement fish production.

***Water Supply Reliability***—This alternative would improve water supply reliability by providing additional storage for critical periods for Urban, Agriculture and Environmental uses. Around 2 million ac-ft of new supply would be available to the Delta.

***Water Quality***—The water quality of exports would be greatly improved from the diversion of higher quality in the upstream areas. The water quality of the Delta would be slightly improved because of the elimination of the export pumps and the implementation of water quality management of core actions.

***System Reliability***—This alternative would achieve some improvements in system reliability through the implementation of core actions. Additional system reliability actions may be needed to achieve more significant improvements.